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SUMMARY OF TRADE AND TARIFF INFORMATION

Prepared in Terms of the Tariff Schedules of the United States

ORIGINAL

COMPLETED

ELECTRICITY, GAS, AND LIQUID SUPPLY AND PRODUCTION METERS

TSUS Item Nos. 713.05-.15

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United States International Trade Commission / Washington, D.C. 20436

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U.S. INTERNATIONAL TRADE COMMISSION RELEASES A SUMMARY ON ELECTRICITY, GAS, AND LIQUID SUPPLY AND PRODUCTION METERS AS ONE OF A SERIES OF SUMMARIES OF TRADE AND TARIFF INFORMATION

Information on U.S. imports, exports, and production and on world trade in electricity, gas, and liquid supply and production meters became available today as the United States International Trade Commission released another report in its series of summaries of trade and tariff information.

The summaries of trade and tariff information are designed to meet the needs of wide and varied interests, including the Congress, the courts, Government agencies, importers, domestic producers, research organizations, and many others. The summaries contain descriptions, in terms of the Tariff Schedules of the United States, of the thousands of products imported into the United States, and information on their methods of production, world supplies, and importance, both in international trade and within the domestic economy. The summaries also include substantive analytical material with regard to the basic factors affecting trends in consumption, production, and trade, and factors bearing on the competitive position and economic health of domestic industries.

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U.S. INTERNATIONAL TRADE COMMISSION RELEASES A SUMMARY ON ELECTRICITY, GAS, AND LIQUID SUPPLY AND PRODUCTION METERS AS ONE OF A SERIES OF SUMMARIES OF TRADE AND TARIFF INFORMATION

This report is being distributed to various Government agencies, Congressional committees, and interested members of the public. In addition, as a service to the public, the field offices of the Department of Commerce and selected public and university libraries will be supplied with copies for commercial and professional consultation. Copies of the report (USITC Publication 841, Control No. 7-2-8) can be obtained by calling (202) 523-5178 or from the Office of the Secretary, United States International Trade Commission, 701 E Street NW., Washington, D.C. 20436.

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FOREWORD

Each Summary of Trade and Tariff Information is part of a series published by the United States International Trade Commission to provide information on conditions of competition between domestic and foreign products. This report, generally covering the period 1974 through 1979, represents one of many being published in the current series of summaries.

This series provides comprehensive coverage of product uses, the domestic industry, U.S. consumption, production, and trade, and the domestic and international markets in each commodity area. The summaries are cast in terms of the eight schedules of the Tariff Schedules of the United States (TSUS).

The current series will consist of approximately 600 individual reports. The Commission will issue updated statistical tables and industry status reports as appropriate for individual summaries. The overall program will run several years, ultimately covering all items of the TSUS.

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Executive Summary

The products covered in this summary are electricity, gas, and liquid supply and production meters and parts thereof that measure, total, and register the quantity of electricity, gas, or liquid produced, supplied, or consumed over a given period of time. Also included are other related special purpose meters, and standard meters intended for checking and calibrating such meters. These meters, although not considered high technology products, are expected to perform with a high degree of accuracy and with minimum maintenance over many years.

The domestic industry, consisting of approximately 37 companies, produces a complete line of these meters. About a third of these firms account for the bulk of the output.

The largest market for these meters is the electricity, gas, and water public utilities which install meters in residences, factories, public buildings, and so forth, to measure consumption of their products. Other major markets are oil refineries, gas and oil storage and distribution facilities, and pipeline operators.

The value of apparent U.S. consumption of such meters increased irregularly from $452 million in 1974 to $611 million in 1979. U.S. production increased similarly over the period from an estimated $480 million to $670 million. U.S. imports increased over the period from $3.4 million to $11.2 million, but accounted for only 1.8 percent of apparent U.S. consumption in 1979. Slightly more than 11 percent of the total imports entered free of duty from developing countries under the Generalized System of Preferences i 1976-79. The annual average ratio of imports, under the provisions of item 807.00 to total imports, was 36 percent for the period 1974-79.

Most developed and some developing nations have their own meter industry. However, only a few countries produce a full range of meters. Japan, Germany, the United Kingdom, France, and Italy are the prime U.S. competitors in the international market. U.S. exports of meters and parts, which consist of about 8 percent of total production, increased from $31.3 million in 1974 to $70.6 million in 1979, or by 126 percent. A considerable portion of U.S. exports appears to consist of commercial, industrial, and specialty meters.

Description and Uses

Commodity	TSUS item No.
Meters:	
Valued not over $10 each	713.05
Valued over $10 each:	
Electricity supply or production meters and standard meters thereof:	
Valued not over $15 each	713.07
Valued over $15 each	713.09
Other	713.11
Parts	713.15

Note.--For the statutory description, see excerpt from the Tariff Schedules of the United States Annotated (1980) in app. A. A concordance of the TSUS items included in this summary with related categories in other production, export, and import nomenclatures is found in app. B.

This summary covers electricity, gas, and liquid supply and production meters that measure, total, and register the quantity of electricity, gas, or liquid produced, supplied, or consumed over a given period of time. Also included are other related special-purpose meters, and standard meters intended for checking and calibrating such meters. Collectively, these meters are frequently referred to as totalizing meters.

Meters that measure only electrical quantities or the flow of gas or liquid, but do not total and register the quantity produced, supplied, or consumed over a given period of time are not included in this summary; they are provided for in the TSUS in items 711.75-.81 (formerly 711.82-.85) and 712.4950-.4955, and will be discussed in a separate summary. Liquid pumps, whether or not fitted with a measuring device, are also not included. They are dutiable as pumps in TSUS item 660.92-.95.

In the United States the two most commonly used and produced electricity meters are the single-phase and polyphase alternating current (ac) induction-type watt-hour meters, which measure, and register current passing through single-phase or polyphase circuits, respectively. Other meters are direct current (dc) meters, ampere-hour (ah) meters, and combined watt-hour and time switch meters. In addition, there are various special-purpose meters, such as multiple-rate meters, in which the electricity measured is calculated at two or more different rates; maximum value meters, which indicate the maximum value of average load during a given period; peak meters, which cite the consumption above a specified peak value; and other special-purpose meters.

The three commonly used types of gas meters are diaphragm positive displacement meters, rotary gas meters, and turbine gas meters. In each type, gas is measured by volume expressed in units of volume at some specific reference pressure and temperature.

A diaphragm gas meter utilizes three or four measuring chambers of known volumetric capacity, and a mechanism that records the quantity of gas for each rotation of the mechanism. A rotary gas meter contains a number of chambers of known volumetric capacity, and the number of revolutions recorded by a counting device indicates the quantity of gas that has passed through the meter. In a turbine gas meter, the gas velocity activates a rotor through which the gas flows. A counting device totals the number of rotor revolutions and the reading shows the quantity of gas that has passed through the meter.

The diaphragm positive displacement meter is the principal type of gas meter produced in the United States. Both the diaphragm and rotary gas meters are accurate metering instruments provided the rate of flow is within the prescribed volume, pressure, and density conditions. Turbine gas meters are used principally for large-volume metering.

Although there are various types of liquid meters, the four most common liquid meters are displacement meters, velocity meters (also termed current, turbine, or torrent meters), compound meters, and Venturi meters.

A displacement meter utilizes a measuring chamber of known volumetric capacity with a disc or piston, and a mechanism that records the quantity of liquid displaced each time it leaves the chamber. This meter has a limited capacity range. A velocity meter contains an impeller, the speed of which is calibrated to the quantity of liquid passing through it. A compound meter consists of both a displacement and a velocity meter. Low flows are measured through the chamber mechanism, and, at a predetermined flow rate, measurement is picked up by the velocity mechanism. A Venturi meter contains an upstream reducer (constriction or waist), and the measuring function is performed by a manometer located at the constricted area of the pipe. The velocity, compound, and Venturi meters are capable of measuring large flows of liquid. Liquid meters are used to measure water, crude oil, gasoline, alcohol, beer, wine, milk, and various other liquids. However, the majority of liquid meters produced in the United States are the displacement meters, which are used principally in residential units to measure water consumption.

Customs Treatment

U.S. customs treatment

The following table shows the previous rates of duty which applied to imports of meters from those countries having most-favored-nation (MFN) status (col. 1), the present and future column 1 rates of duty negotiated under the most recent Multilateral Trade Negotiations (MTN), rates of duty which apply to imports from countries designated by the President as being under Communist

Electricity, gas, and liquid meters: U.S. rates of duty, previous, present and negotiated, by TSUS items

TSUS item No.	Description	Previous col. 1 rate of duty 1/	Present col. 1 rate of duty 2/	Negotiated col. 1 rate of duty 3/	Col. 2 rate of duty 4/	GSP eligibility
	Electricity, gas and liquid supply and production meters:					
	Meters:					
713.05	Valued not over $10 each	75¢ each + 16% ad val.	69¢ each + 14.8% ad val	30¢ each + 6.4% ad val.	$3 each + 65% ad val.	Yes
	Valued over $10 each:					
	Electricity supply or production meters and standard meters therefor:					
713.07	Valued not over $15 each	$1.12 each + 16% ad val.	98¢ each + 14% ad val.	45¢ each + 6.4% ad val.	$4.50 each + 65% ad val.	Yes
713.09	Valued over $15 each	$1.12 each + 11% ad val.	$1.03 each + 10.2% ad val.	45¢ each + 4.4% ad val.	$4.50 each + 65% ad val.	Yes
713.11	Other	$1.12 each + 17.5% ad val.	$1.03 each + 16.2% ad val.	45¢ each + 7% ad val.	$4.50 each + 65% ad val.	Yes
713.15	Parts	22.5% ad val.	19.5% ad val.	9% ad val.	65% ad val.	Yes 5/

1/ Effective Jan. 1, 1972 - Dec. 31, 1979.
2/ Effective Jan. 1, 1980.
3/ Rate negotiated under the Multilateral Trade Negotiations in Geneva (Tokyo round), to be achieved through 8 annual staged reductions. This rate is currently applicable to products from countries designated as "least developed developing countries."
4/ Rate provided in the Tariff Act of 1930.
5/ Excluding imports from Mexico, effective Mar. 1, 1979.

domination or control (col. 2); 1/ and a reference as to eligibility for duty-free treatment under the Generalized System of Preferences (GSP) 2/, for meters entered under items 713.05-713.15 of the TSUS.

Foreign customs treatment

Electricity, gas, and liquid meters are dutiable at a wide range of rates throughout the world. With the exception of the United States and Canada, the Customs Cooperation Council Nomenclature (CCCN), formerly the Brussels Tariff Nomenclature, is used by most countries as the basis for their tariff classifications. Electricity, gas, and liquid meters are provided for in heading number 90.26 in the CCCN, and parts or accessories suitable for use solely or principally with articles falling within heading 90.26 are classified in heading 90.29. The following tabulation cites the present rates of duty for meters, and those negotiated under the MTN for the major U.S. trading partners:

Market	Description of commodity and foreign tariff item No.	Present rate of duty 1/	Negotiated rate of duty 2/
Canada	Electricity meters (44524-1)	16.6% ad val.	10.2% ad val.
	Gas meters (44400-1)	16.6% ad val.	10.2% ad val.
	Liquid meters (46200-1)	14.1% ad val.	7.5% ad val.
EEC	Electricity meters (90.26)	8.5% ad val.	5.0% ad val.
	Gas meters (90.26)	8.5% ad val.	5.0% ad val.
	Liquid meters (90.26)	8.5% ad val.	5.0% ad val.
	Parts (90.29)	7.2% ad val.	5.1% ad val.
Japan	Electricity meters (90.26)	5.6% ad val.	4.2% ad val.
	Gas meters (90.26)	5.6% ad val.	4.2% ad val.
	Liquid meters (90.26)	5.6% ad val.	4.2% ad val.
	Parts (90.29)	5.6% ad val.	4.2% ad val.

1/ Rates applicable to imports from the United States.
2/ Final rates negotiated under the Multilateral Trade Negotiations.

1/ Poland, Yugoslavia, Romania, and the People's Republic of China have been accorded MFN treatment by the United States.

2/ The GSP, under title V of the Trade Act of 1974, provides duty-free treatment for specified eligible articles imported directly from designated beneficiary developing countries. GSP, implemented by Executive Order No. 11888 of Nov. 24, 1975, applies to products imported on or after Jan. 1, 1976, and is expected to remain in effect until Jan. 4, 1985.

The U.S. Industry

There are approximately 15 domestic manufacturers of electricity meters, about 6 manufacturers of gas meters, and approximately 16 producers of liquid meters. In terms of both units and dollar value of shipments, the bulk of electricity meters are produced by four firms, most gas meters are manufactured by three, and the bulk of liquid meters are produced by six companies. As a general rule, the majority of the standard, high demand types of meters are produced by the leading manufacturers in each industry, while the specialty types are generally produced by the smaller companies. All major manufacturers of these meters produce other products. However, only one manufacturer is a major producer of both gas and liquid meters. Production is concentrated in the North Central, Middle Atlantic, and New England regions. Total industry employment rose irregularly from an estimated 14,500 persons in 1974 to 15,500 in 1979, while employment of production workers increased from 9,500 to 10,500, see Appendix tables.

The production processes used by the electricity, gas, and liquid meter industry in the United States have been influenced considerably by the high performance standards required. These meters are required to perform the metering function with a high degree of accuracy, and function properly over many years with a minimum of calibration and maintenance. Because of these high performance requirements, and the specialty aspect of the meter components, the leading manufacturers produced from 60 to 95 percent of their own parts and components.

Automation or assembly line production techniques are utilized wherever possible in both the assembly of components and the manufacture of the completed product. Necessary testing and quality control functions are performed on individual parts and components, and each assembled meter is tested to ensure acceptable performance capabilities.

Medium to highly skilled workers are required to operate the many heterogenous and sophisticated machines, to assemble by hand and machine the components and end products, and to perform the necessary quality control functions. The meter industry, however, is essentially labor intensive.

Some U.S. firms, taking advantage of the lower labor cost abroad, assemble meter components or meters in foreign countries for re-export to the United States under TSUS item 807.00. 1/ A number of the leading U.S. producers operate plants in foreign countries to produce meters for local consumption. Two of the four leading U.S. electricity meter manufacturers are

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1/ Under TSUS item 807.00, imported articles assembled in foreign countries with components that have been manufactured in the United States are subject to duty upon the full value of the imported article less the value of the U.S. components contained therein.

controlled by foreign multinational corporations. It is the general marketing practice in this industry for the manufacturer to sell directly to the users, with only a small portion of the sales being handled by the distributor. The bidding process is widely used.

The firms which produce about 80 percent of the total annual output of meters are either large diversified publicly held corporations, or are affiliates or subsidiaries of such enterprises. Thus, only consolidated financial reports are available; these show an average ratio of after-tax profits to stockholder equity of 15 percent in 1978. Financial information for the small privately held companies is not available, nor are their profit margins known. The publicly held meter producing companies acquire their capital from the issuance of stock, from banks, and other sources, while the smaller companies depend on banks and other private sources for their capital.

The U.S. Market

Domestic market profile

As mentioned earlier, public utilities constitute the largest market for electricity, gas, and liquid meters along with oil refineries, natural gas and oil storage and distribution facilities, and pipeline operators. Also, as a consequence of the high cost of energy, an increasing number of meters are being installed for in-plant measuring to facilitate energy management programs, and more individual meters rather than master meters are installed in apartments, condominiums, and townhouses.

Since it is customary in the United States for public utilities to procure, install the meters and retain ownership of them, the number of actual purchasers of meters is relatively small. Although there are approximately 3,500 electric utilities in the United States, the 200 largest electric utilities have more than 75 percent of the generating capacity and serve approximately 80 percent of U.S. customers. 1/ There are approximately 1,500 gas utilities in the United States, half of which are municipally owned and the rest are investor owned. The approximately 250 leading gas utilities, which are mostly investor owned, serve around 90 percent of the customers. Of the approximately 10,000 water utilities in the United States, 75 percent are municipally owned and 1,000 serve 91 percent of the population.

U.S. consumption

U.S. consumption of electricity, gas, and liquid meters, decreased by about 9 percent from 1974 to 1975, a recession year, then increased in each year thereafter from an estimated $414 million in 1975 to $611 million in 1979,

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1/ Eighty percent of the electric utilities are investor owned and are supplying 75 percent of the total electricity consumed. The rest of the electric utilites are owned by Federal, State or, municipal authorities or by cooperatives.

or by 48 percent (table 1). U.S. consumption of totalizing meters is closely tied to the activities of the residential and nonresidential construction industry. When compared with 1974, private construction of residential and nonresidential structures decreased by 3 percent in 1975; for the years 1976-79, construction activities increased by 12, 15, 17, and 11 percent, respectively. Because of the practice in the meter industry to carry small inventories, the trend in construction activities is soon reflected in the meter industry, as shown by parallels in U.S. consumption of meters in 1974-79.

Domestic consumption of residential meters is expected to show a decrease in 1980 and early 1981, as a result of a sharp decrease in housing starts in the first 4 months of 1980. However, the anticipated increased use of meters for energy management programs, and increased exports of production meters, especially to oil and gas producing nations, could be offsetting factors that might cushion the declining demand resulting from reduced housing construction.

Foreign-made meters have had a relatively insignificant impact on the U.S. meter market. In terms of value, the ratio of imports to U.S. consumption never exceeded 2 percent in any year during 1974-79. A number of factors have contributed to this situation. Foremost, foreign suppliers have established neither efficient distribution systems in the United States nor facilities to provide essential after-sale services, such as timely repairs or calibrations, and adequate supplies of replacement parts and components.

U.S. production

U.S. producers' shipments of electricity, gas, and liquid meters amounted to $480 million in 1974, fell to $442 million in 1975, and then increased without interruption to $670 million in 1979--an increase of nearly 52 percent (table 1). In terms of value, electricity meters represented approximately 40 percent of total U.S. meter production, while gas and liquid meters accounted for the balance of production.

U.S. imports

Import trends.--Although aggregate U.S. imports of meters and parts increased from a value of $3.4 million in 1974 to $11.2 million in 1979, the annual average ratio of imports to apparent consumption was only 1.3 percent (table 1). The trend of imports of specific types of meters varied during this period. As shown in table 2, imports of lower priced meters valued not over $10 each (TSUS item 713.05) declined about 60 percent from $388,000 in 1974 to $152,000 in 1979; the value of imports of electricity meters valued not over $15 each (TSUS item 713.07) fluctuated erratically but declined over the period; while imports of electricity meters valued over $15 each (TSUS item 713.09) increased until 1978 when the value dropped by almost 50 percent over 1977, only to rise in 1979 by nearly 300 percent to $616,000; imports of

gas and liquid meters (TSUS item 713.11) increased during 1974-79, rising from $797,000 to $3.1 million, or by almost 300 percent; at the same time, parts of electricity, gas, and liquid meters (TSUS item 713.15) also experienced a sharp gain, rising from $2 million in 1974 to 7.3 million in 1979, or by almost 260 percent (table 3).

The increasing cost of meters in recent years is responsible for the decline in imports of meters valued not over $10 each (TSUS item 713.05), and electricity meters valued over $10 each but not over $15 each (TSUS item 713.07). Thus, meters previously imported under these items are now entering under TSUS items 713.09-.11, and this probably accounts in part for the increased value of imports recorded under these two provisions in recent years.

Imports of gas and liquid meters, valued over $10 (TSUS item 713.11), and parts of electricity, gas, and liquid meters (TSUS item 713.15) accounted on the average for 92 percent of the total value of imports of all meters and parts during the period 1974-79. In recent years, the United Kingdom, the Federal Republic of Germany, Israel, and Canada were the major sources of imports under item 713.11 (table 4), while the principal suppliers under item 713.15 were Mexico, Canada, the United Kingdom, and West Germany (table 3).

Imports under item 807.00.--Aggregate imports of meters and parts under TSUS item 807.00 increased from $728,000 in 1974 to $4.5 million in 1979. The ratio of imports under 807.00 to total imports rose gradually during these years from 21.3 percent in 1974 to 44.4 percent in 1977, falling in 1978, and recovering to 40.2 percent in 1979. Mexico and Canada were the only sources of imports under this provision in the period 1974-79, and Mexico was consistently the largest supplier, providing on the average more than 90 percent of such imports. Components and parts for gas and liquid meters, the assembly of which requires considerable manual labor, represented the bulk of imports under item 807.00. U.S. producers of meters were the prime importers under this provision.

Imports under the Generalized System of Preferences.--All meters and parts are eligible for duty-free treatment under GSP. Imports under GSP increased from $569,000 in 1976 to $1.4 million in 1979. For 1976-79, the ratio of GSP imports to all imports of meters and parts was 10.8, 9.7, 13.9, and 12.4 percent, respectively.

Gas and liquid meters, TSUS item 713.11, consistently accounted for the largest share of GSP imports of meters, increasing from $516,500 in 1976 (91 percent of total GSP imports) to $829,000 in 1979 (60 percent of total GSP imports). Israel was the leading source, accounting for more than 70 percent, followed by Yugoslavia and Brazil. Parts for electricity, gas, and liquid meters, TSUS item 713.15, accounted for the next largest share of imports under GSP, increasing from $10,500 in 1976 to $508,000 in 1979. Brazil and the Republic of Korea were the principal countries supplying products under this item.

The International Market

International market profile

In the international meter market, the United States' prime competitors are Japan, West Germany, the United Kingdom, France, and Italy. The Japanese appear to dominate the Southeast Asian market, especially Thailand, Malaysia, and Indonesia. Most of West Germany's considerable meter exports go to the EEC and EFTA nations. Great Britain exports meters mostly to the EEC countries, and the British Commonwealth nations, with the exception of Canada. France exports primarily to its former colonies, such as Morocco, Algeria, Niger, Senegal, and Cameroon. The majority of Italy's meter exports, which consist essentially of liquid meters, are exported to the EEC nations.

There are a number of factors that inhibit U.S. export potential. Many developed and some developing nations have their own meter industry, especially for residential use. Other factors are special national or regional meter design features, certain specification requirements, and the preference by meter users to deal with local purchasers to ensure the availability of replacement parts and after-sales service.

U.S. exports

U.S. exports of electricity, gas, and liquid meters, and parts increased from $31.3 million in 1974 to $70.6 million in 1979, or by 126 percent (table 5). Exports grew steadily during this period with the exception of a 3 percent decrease in 1975. The annual average ratio of exports to producers' shipments amounted to 8 percent.

In 1974-79, electricity meters and parts accounted for an average of 39 percent of total annual U.S. meter exports, and the largest foreign markets were Mexico, Canada, Philippines, and Taiwan. Central and South America, as a whole, also represented a respectable market for electricity meters and parts (table 6). The average share of exports of gas and liquid meters and parts to total meter exports was 61 percent. The developed nations accounted for the bulk of U.S. exports of gas and liquid meters. The most significant foreign markets for gas meters were the United Kingdom, Australia, and Canada (table 7), whereas export markets for liquid meters were principally Canada, Mexico, the United Kingdom and Australia (table 8). Almost two-thirds of total U.S. exports of parts for gas and liquid meters went to Canada and Mexico (table 10). The bulk of parts exported to Mexico were intended for assembly and re-export to the United States under the provisions of item 807.00.

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APPENDIX A

PART 2, SUBPART D, OF SCHEDULE 7 OF THE TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1980)

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Subpart D. - Measuring, Testing, and Controlling Instruments				
			Subpart D headnotes:				
			1. The provisions of this subpart covered by items 711.04 to 711.88, inclusive, do not apply to electrical measuring, checking, analyzing, or automatically-controlling instruments or apparatus, as defined in headnote 2 below.				
			2. For the purposes of this subpart, the provisions herein (items 712.05 to 712.52, inclusive) for "electrical measuring, checking, analyzing, or automatically-controlling instruments and apparatus" apply only to the following articles: (a) appliances, instruments, apparatus, or machines of kinds described in subpart C of this part or in the provisions of this subpart (subpart D) covered by items 711.04 to 711.88, inclusive, the operation of which depends on an electrical phenomenon which varies according to the factor to be ascertained or automatically controlled; (b) instruments or apparatus for measuring or checking electrical quantities; and (c) instruments or apparatus for measuring or detecting alpha, beta, gamma, X-ray, cosmic, or similar radiations.				
			Balances of a sensitivity of 5 centigrams or better, with or without their weights, and parts thereof; weights suitable for use with such balances and sets of weights containing any such weights:				
A	711.04	00	Jewelers' balances and parts thereof	X.....	9% ad val.	5.7% ad val.	45% ad val.
A	711.08	00	Other	X.....	11.8% ad val.	6.6% ad val.	40% ad val.
A	711.25	00	Machines and appliances for determining the strength of articles or materials under compression, tension, torsion, or shearing stress, and parts thereof	X.....	6.7% ad val.	4.7% ad val.	40% ad val.
			Hydrometers and similar floating instruments; thermometers, pyrometers, barometers, hygrometers, and psychrometers, whether or not recording instruments; any combination of the foregoing instruments; and articles in which one or more of such instruments are incorporated as significant integral parts and which are ordinarily used in the home or office where they are usually hung on the wall, or placed on mantels, shelves, or furniture:				
A	711.30	00	Hydrometers and similar floating instruments, whether or not incorporating thermometers	X.....	19.4% ad val.	8.4% ad val.	85% ad val.

For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

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SCHEDULE 7. - SPECIFIED PRODUCTS: MISCELLANEOUS AND NONENUMERATED PRODUCTS
Part 2. - Optical Goods; Scientific and Professional Instruments; Watches, Clocks, and Timing Devices; Photographic Goods; Motion Pictures; Recordings and Recording Media

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Electrical measuring, checking, analyzing, or automatically-controlling instruments and apparatus, and parts thereof (con.):				
			Other (con.):				
A	712.49		Other (con.):				
	(con.)	60	Polarimeters, refractometers, spectrometers, gas analysis apparatus and other instruments or apparatus for physical or chemical analysis; viscometers, porosimeters, expansion meters and other instruments and apparatus for measuring or checking viscosity, porosity, expansion, surface tension, or similar properties; photometers (except photographic light meters), calorimeters, and other instruments or apparatus for measuring or checking quantities of heat, light, or sound; all the foregoing, and parts thereof.....	X			
		70	Instruments and apparatus to measure or check electrical quantities.....	X			
		80	Other.....	X			
	712.51	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6).....	X.....	Free		
	712.52	00	Electrical measuring, checking, analyzing or automatically-controlling instruments and apparatus, if certified for use in civil aircraft (see headnote 3, part 6C, schedule 6).....	X.....	Free		40% ad val.
			Gas and liquid supply or production meters; watt-hour meters, ampere-hour meters, and other electricity supply or production meters designed to register the total amount of electricity or electrical energy produced or consumed; standard meters for checking and calibrating any of the foregoing meters; all the foregoing and parts therefor:				
			Meters:				
A	713.05	00	Valued not over $10 each.....	No.....	69¢ each + 14.8% ad val.	30¢ each + 6.4% ad val.	$3 each + 65% ad val.
			Valued over $10 each:				
			Electricity supply or production meters and standard meters therefor:				
A	713.07	00	Valued not over $15 each.....	No.....	98¢ each + 14% ad val.	45¢ each + 6.4% ad val.	$4.30 each + 65% ad val.
A	713.09	00	Valued over $15 each.....	No.....	$1.03 each + 10.2% ad val.	45¢ each + 6.4% ad val.	$4.30 each + 65% ad val.
A	713.11	00	Other.....	No.....	$1.03 each + 16.2% ad val.	45¢ each + 7% ad val.	$4.30 each + 65% ad val.
A*	713.15	00	Parts.....	X.....	19.5% ad val.	9% ad val.	65% ad val.
			Stroboscopes of all kinds, and parts thereof:				
A	713.17	00	Stroboscopes.....	No.....	$1.03 each + 16.2% ad val.	45¢ each + 7% ad val.	$4.30 each + 65% ad val.
(2) A	713.19	00	Parts.....	X.....	19.5% ad val.	9% ad val.	65% ad val.

(1)

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

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APPENDIX B

CONCORDANCE OF TSUS NUMBERS, SCHEDULE B NUMBERS, SIC NUMBERS, SITC NUMBERS, AND CCCN NUMBERS

Electricity, gas, and liquid meters, and parts: TSUS item numbers, Schedule B numbers, SIC numbers, SITC numbers, and CCCN (BTN) numbers included in this commodity group

TSUS item No.	Schedule B No. 1/	SIC No.	SITC No.	CCCN (BTN) No.
713.05	713.0110	3824222	873.1	90.26
713.07	713.0130	3824224		90.29
713.09	713.0140	3824226		
713.11	713.0150	3824228		
713.15	713.0160	3824233		
		3824235		
		3824237		
		3824241		
		3824298		
		3824299		
		3825110		
		3825111		
		3825114		
		3825115		
		3825135		
		3825151		
		3825161		
		3825100		

1/ Prior to 1978, the Schedule B numbers were as follows: 729.51, 861.8110, -.8120, -.9910, -.9940.

APPENDIX C

STATISTICAL TABLES

Table 1.--Electricity, gas, or liquid meters and parts: U.S.producers' shipments, foreign trade, apparent consumption, ratio of imports to consumption, and employment, 1974-79

Market	1974	1975	1976	1977	1978	1979
Producers' shipments million dollars	480.1	441.6	483.9	553.3	1/ 604.6	1/670.0
Exports---------do----	31.3	30.3	37.2	41.7	48.7	70.6
Imports---------do----	3.4	2.9	5.2	7.1	10.9	11.2
Apparent consumption million dollars	452.2	414.2	451.9	518.7	566.8	610.6
Ratio of imports to apparent consumption percent	.8	.7	1.2	1.4	2.0	1.8
Total employees 1/ 1,000 workers	14.5	14.0	14.0	14.5	15.0	15.5
Production workers 1,000 workers	9.5	9.0	9.0	9.5	10.0	10.5

1/ Estimated on the basis of official statistics of the U.S. Department of Commerce.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Table 2.--Electricity, gas, and liquid meters, and parts: U.S. imports for consumption, 1974-79

(In thousands of dollars)

TSUS item No.	Item	1974	1975	1976	1977	1978	1979
	Meters:						
713.05	Valued not over $10 each	388	252	37	80	45	152
	Valued over $10 each: Electricity supply or production meters and standard meters thereof:						
713.07	Valued not over $15 each	97	25	13[1]	85	18	4
713.09	Valued over $15 each	100	134	261	314	158	616
713.11	Other	797	735	1,320	2,055	2,939	3,178
713.15	Parts	2,039	1,705	3,491	4,597	7,702	7,276
	Total	3,421	2,851	5,240	7,131	10,862	11,226

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3.--Parts for electricity, gas, and liquid meters (TSUS item 713.15): U.S. imports for consumption, by principal sources, 1974-79

(In thousands of dollars)

Source	1974	1975	1976	1977	1978	1979
Mexico	638	806	1,934	2,651	3,961	4,389
Canada	472	333	738	1,171	1,779	1,088
United Kingdom	375	225	368	221	739	647
West Germany	389	225	262	339	535	545
Japan	27	77	138	134	127	69
All other	137	39	50	82	561	538
Total	2,039	1,705	3,491	4,597	7,702	7,276

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 4.--Gas and liquid meters valued over $10 (TSUS item 713.11): U.S. imports for consumption, by principal sources, 1974-79

(In thousands of dollars)

Source	1974	1975	1976	1977	1978	1979
United Kingdom	96	100	204	344	670	902
Canada	17	6	18	99	306	786
Israel	95	90	479	38	904	604
West Germany	337	331	461	658	523	375
Yugoslavia	-	-	58	8	125	201
Japan	68	89	62	32	233	196
All other	184	119	34	876	178	114
Total	797	735	1,320	2,055	2,939	3,178

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 5.--Electricity, gas, and liquid meters, and parts: U.S. exports of domestic merchandise, by principal markets, 1974-79

(In thousands of dollars)

Schedule B No.	Item	1974	1975	1976	1977	1978	1979
	Electricity meters and and parts:						
713.0110	Meters	9,137	10,107	8,610	7,613	10,118	19,366
713.0150	Parts	3,528	2,490	3,614	7,398	9,926	14,316
	Gas and liquid meters and parts:						
3.0130	Gas meters	4,501	4,184	5,882	6,991	6,090	9,266
713.0140	Liquid meters	7,447	7,759	10,471	9,185	9,353	12,633
713.0160	Parts	6,646	5,753	8,592	10,508	13,232	14,986
	Total	31,259	30,293	37,169	41,695	48,719	70,567

1/ Prior to 1978 the Schedule B numbers were as follows: 729.51, 861.8110, -.8120, -.9910, -.9940.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 6.--Electricity meters: 1/ U.S. exports of domestic merchandise, by principal markets, 1974-79

(In thousands of dollars)

Market	1974	1975	1976	1977	1978	1979
Mexico	3,446	4,257	1,349	543	2,053	4,345
Philippines	701	1,173	3,693	2,059	1,205	2,527
Taiwan	646	622	423	620	527	1,970
Saudi Arabia	16	171	-	169	594	1,755
Canada	208	197	360	252	1,201	1,266
Guatemala	312	251	89	282	348	866
Costa Rica	116	-	216	524	190	753
Colombia	169	198	95	248	353	279
All other	3,523	3,238	2,385	2,916	3,647	5,605
Total	9,137	10,107	8,610	7,613	10,118	19,366

1/ Includes Schedule B No. 713.0110 (formerly 729.51).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 7.--Gas meters: 1/ U.S. exports of domestic merchandise, by principal markets, 1974-79

(In thousands of dollars)

Market	1974	1975	1976	1977	1978	1979
United Kingdom	651	536	287	871	1,416	1,706
Australia	457	706	568	623	675	1,228
West Germany	67	-	-	-	223	729
Japan	261	128	97	281	213	678
Canada	1,176	1,167	642	830	590	549
Netherlands	501	319	235	425	605	417
Mexico	90	-	117	316	212	385
Brazil	145	208	129	74	99	116
All Other	1,153	1,120	3,806	3,571	2,057	3,458
Total	4,501	4,184	5,881	6,991	6,090	9,266

1/ Includes Schedule B No. 713.0130 (formerly 861.8110).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 8.--Liquid meters: 1/ U.S. exports of domestic merchandise, by principal markets, 1974-79

(In thousands of dollars)

Market	1974	1975	1976	1977	1978	1979
Canada	1,594	1,278	1,374	1,509	1,215	2,274
Mexico	391	431	561	385	443	720
United Kingdom	524	781	1,058	675	285	663
Saudi Arabia	101	103	145	142	506	595
Australia	366	328	248	511	473	542
Indonesia	130	104	-	221	155	496
Switzerland	97	224	199	231	373	474
West Germany	136	169	385	364	400	451
All other	4,108	4,341	6,501	5,147	5,503	6,418
Total	7,447	7,759	10,471	9,185	9,353	12,633

1/ Includes Schedule B No. 713.0140 (formerly 861.8120).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 9.--Parts for electricity meters: 1/ U.S. exports of domestic merchandise, by principal markets, 1974-79

(In thousands of dollars)

Market	1974	1975	1976	1977	1978	1979
Taiwan	109	78	757	2,068	2,669	5,002
Japan	175	103	320	2,033	3,336	2,615
Brazil	642	490	625	751	933	1,413
Mexico	947	236	566	774	501	1,322
Canada	208	444	485	474	993	1,300
Philippines	80	267	118	125	96	528
All other	1,367	872	743	1,173	1,398	2,136
Total	3,528	2,490	3,614	7,398	9,926	14,316

1/ Includes Schedule B No. 713.0150 (formerly 861.9910).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 10.--Parts for gas and liquid meters: 1/ U.S. exports of domestic merchandise, by principal markets, 1974-79

(In thousands of dollars)

Market	1974	1975	1976	1977	1978	1979
Canada	3,494	2,887	4,825	4,885	5,077	5,318
Mexico	782	1,080	1,876	2,671	4,013	4,739
Saudi Arabia	17	-	113	350	198	969
United Kingdom	464	100	141	574	1,018	727
Australia	276	154	157	446	487	268
Taiwan	239	200	266	343	84	240
All other	1,374	1,332	1,214	1,239	2,356	2,725
Total	6,646	5,753	8,592	10,508	13,232	14,986

1/ Includes Schedule B No. 713.0160 (formerly 861.9940).

Source: Compiled from official statistics of the U.S. Department of Commerce.

SUMMARIES OF TRADE AND TARIFF INFORMATION

USITC PUBLICATION 841

COMPLETE LIST OF SUMMARIES PUBLISHED TO DATE IN SCHEDULE 7

Control No.	Title	Control No.	Title
7-1-1	Luggage		
7-9-2	Fireworks		
7-2-3	Physical Testing Machines and Appliances		
7-10-4	Writing Instruments		
7-3-5	Pianos and Other Keyboard Stringed Instruments		
7-2-6	Unmounted Ophthalmic Lenses		
7-5-7	Dolls and Stuffed Toy Animals		
7-1-8	Handbags		
7-2-8	Electricity, Gas, and Liquid Supply and Production Meters		